123

AF/3725

TER 99P3268

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By: _____ Date: March 8, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Klaus Blinn et al.
Applic. No.	:	10/036,254
Filed	:	October 22, 2001
Title	:	Apparatus for Compressing Objects and High-Pressure Press
Examiner	:	Shelley M. Self - Art Unit: 3725
Docket No.	:	TER 99P3268

REPLY BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S i r :

This is a *Reply Brief* responding to the *Examiner's Answer* mailed January 7, 2004.

Arguments:

Appellants comment as follows with respect to the Examiner's Answer dated January 7, 2004:

It is apparent the Examiner understands the arguments set forth by Appellants in the Appeal Brief dated September 30, 2003, because the Examiner comments in lines 1-2 on page 4 of the Examiner's Answer that "Additionally the connection/securing means (7, 8, 13, 14) between the ram head (2) and ram (6) allow for ease of removal/replacement of the ram head(2) from the ram (6)." Therefore, it is completely contradictory for the Examiner to suggest that the replacement of one type of shaft mechanism for another (bolt) is simply mere substitution of like parts. The ramifications of the structural changes to the Tezuka reference have been clearly presented in the Appeal Brief, and are not simply a mere substitution of like parts. It is, therefore, respectfully submitted that the Examiner's comments that the replacement of one type of shaft mechanism for another (bolt) should be disregarded.

Two of the Examiner's comments on page 4 of the Examiner's Answer are entirely incorrect. The Examiner first states: "Moreover, because the bolt consists of a shaft portion, the functionality of the bolt as it relates to the ram head (2)

and ram (6) to secure/connect and allow for rotational movement of the ram head is not inhibited;" and thereafter states: "Whereas the bolt is a threaded shaft, replacing the bushing (8) and shaft (13) as noted above with a bolt would not change/alter the overall engineering tolerance practices." In Tezuka, a centrally disposed bolt mounting the ram head (2) to the plate (7) would **require** a sufficient clearance hole as per standard machining practices to allow for assembly of the ram head (2) to the plate (7) (i.e., a clearance hole for a 1" bolt requires a of diameter of 1.062"). See attached prior art document indicating standard clearance practices for screws. The sufficient clearance is required for the following reasons: when assembling the ram head (2) to the plate (7), the ram head (2) will be moved into position under the plate (7) by a forklift or similar lifting device. Such a device simply cannot exactly position a threaded hole for mounting by a screw that is positioned in a hole with minimal clearance (as would absolutely be required of the hole in the Tezuka plate (7)). The minimal clearance (for a running shaft approximately .0023" on the diameter, see attached prior art sheet indicating general practice tolerances for shafts, which is a factor of 20 less than the clearance for a bolt of the same size, see bolt clearance provided above) is required because any shaft that mounts the ram head (2) must allow the ram head to rotate and cannot have excessive clearance because excessive clearance would create uneven wear in the clearance

hole in the plate (7) of Tezuka and it would also damage the gearing (12, 16) of Tezuka, which rotates the ram head. Furthermore, because of the minimal clearance and the inaccuracy of positioning the ram head (2) with a forklift, it would be nearly impossible to start a screw thread in a threaded hole of a ram head. Also, it is well known in the art that the machining of threads is not a precise machining practice. Therefore, even in the event that the screw could be started, without sufficient clearance in the hole in the plate (7) of Tezuka, the screw could easily bind, thus preventing a full tightening down of a screw. It is, therefore, respectfully submitted that the Examiner's comments:

that the functionality of the bolt as it relates to the ram head (2) and ram (6) to secure/connect and allow for rotational movement of the ram head is not inhibited; and

that replacing the bushing (8) and shaft (13) as noted above with a bolt would not change/alter the overall engineering tolerance practices, should be disregarded.

The Examiner's comment that "discovering the optimal value of a result effective variable (i.e., clearance between the bolt/shaft, ram and ram head) involves only routine skill in the art" is also not correct because the use of a bolt as

suggested by the Examiner would require a clearance hole that would not be acceptable for the rotational movement and rotational components of the press disclosed in Tezuka. It is, therefore, respectfully submitted that the Examiner's comments about discovering an optimal value of a result effective variable (i.e., clearance between the bolt/shaft, ram and ram head) does not involve only routine skill in the art.

Based on the above given arguments the honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

Respectfully submitted,

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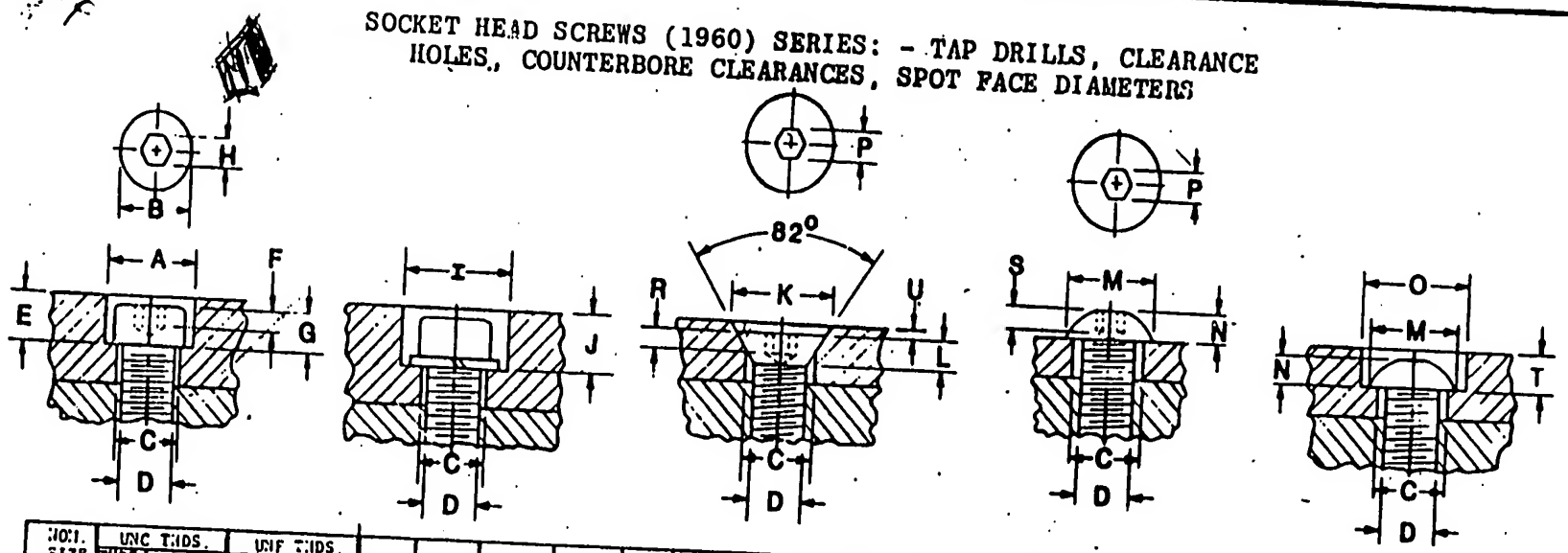
SOCKET HEAD SCREWS (1960) SERIES: - TAP DRILLS, CLEARANCE HOLES., COUNTERBORE CLEARANCES, SPOT FACE DIAMETERS



NOM. SIZE & DIA	UNC THDS. THDS PER INCH	UNC THDS. TAP DRILL	UNF THDS. THDS PER INCH	UNF THDS. TAP DRILL	A CBORE	B MAX.	C	E	F	G MAX.	H NOM.	I	J	K REF.	L NOM.	M MAX.	N MAX.	O	P NOM.	R	S	T	U
No. 4 (.112)	40	No. 43 (.089)	48	No. 42 (.0935)	.218	.183	No. 30 (.1285)	.141	.051	.112	.094	.250	.172	.281	.083	.213	.039	.250	.062	.033	.036	.078	.011
No. 5 (.125)	40	No. 38 (.1015)	44	No. 37 (.1040)	.250	.205	.141	.156	.057	.125	.094	.281	.187	.281	.090	.238	.066	.281	.078	.061	.044	.078	.012
No. 6 (.138)	32	No. 36 (.1065)	40	No. 33 (.1130)	.250	.226	No. 23 (.154)	.172	.064	.138	.109	.312	.203	.307	.097	.262	.073	.281	.078	.066	.044	.094	.013
No. 8 (.164)	32	No. 29 (.136)	36	No. 29 (.136)	.312	.270	.187	.203	.077	.164	.141	.344	.234	.359	.112	.312	.087	.344	.094	.076	.052	.109	.014
No.10 (.190)	24	No. 25 (.1495)	32	No. 21 (.159)	.344	.312	.218	.219	.090	.190	.156	.375	.266	.411	.127	.361	.101	.406	.125	.087	.070	.125	.015
.250	20	No. 7 (.201)	28	No. 3 (.213)	.406	.375	.281	.281	.120	.250	.187	.531	.343	.531	.161	.438	.132	.469	.156	.111	.087	.156	.016
.312	18	"F" (.257)	24	Letter I (.272)	.500	.469	.343	.344	.151	.312	.250	.656	.438	.656	.198	.547	.166	.594	.187	.135	.105	.187	.017
.375	16	.312	24	"Q" (.332)	.594	.562	.406	.406	.182	.375	.312	.750	.516	.781	.234	.656	.199	.688	.219	.159	.122	.219	.018
.500	13	.422	20	.453	.812	.750	.562	.531	.245	.500	.375	.938	.672	.938	.293	.875	.265	.938	.312	.222	.175	.281	.018
.625	11	.531	18	.578	1.000	.938	.688	.656	.307	.625	.500	1.188	.844	1.188	.324	1.000	.331	1.062	.375	.220	.210	.359	.022
.750	10	.656	16	.688	1.188	1.125	.812	.781	.370	.750	.625	1.375	1.000	1.438	.396								.024
.875	9	.766	14	.812	1.375	1.312	.938	.906	.434	.875	.750	1.562	1.125										
1.000	8	.875	12	.938	1.562	1.500	1.062	1.031	.395	1.000	.750	1.750	1.312										

NOTE: Rule #1 - Page 7-1-2 - Do not apply to 3-piece decimals as listed.

TOLERANCE & ALLOWANCE TABLE

GENERAL PRACTICE

RANGE	HOLE SIZE	SHAFT DIA RUNNING FIT	SHAFT DIA SLIP FIT	SHAFT DIA PLUG FIT	SHAFT DIA PRESS FIT	SHAFT DIA SHRINK FIT
0 TO 1/4	TOL +.0002 BASIC	TOL -.0002 BASIC -.0006	TOL -.0002 BASIC -.0003	TOL -.0002 BASIC -.0002	TOL -.0002 BASIC +.0008	TOL +.0002 BASIC +.0009
1/4 TO 1/2	TOL +.0003 BASIC	TOL -.0002 BASIC -.0008	TOL -.0002 BASIC -.0004	TOL -.0002 BASIC -.0002	TOL -.0002 BASIC +.001	TOL -.0002 BASIC +.001
1/2 TO 1	TOL +.0003 BASIC	TOL -.0003 BASIC -.001	TOL -.0003 BASIC -.0005	TOL -.0002 BASIC -.0003	TOL -.0003 BASIC +.0018	TOL -.0003 BASIC +.0018
1 TO 1 1/2	TOL +.0004 BASIC	TOL -.0004 BASIC -.0015	TOL -.0004 BASIC -.0008	TOL -.0002 BASIC -.0003	TOL -.0004 BASIC +.0019	TOL -.0004 BASIC +.0024
1 1/2 TO 2	TOL +.0005 BASIC	TOL -.0005 BASIC -.0015	TOL -.0005 BASIC -.001	TOL -.0002 BASIC -.0004	TOL -.0005 BASIC +.002	TOL -.0005 BASIC +.003
2 TO 3	TOL +.0005 BASIC	TOL -.0005 BASIC -.002	TOL -.0005 BASIC -.001	TOL -.0002 BASIC -.0004	TOL -.0005 BASIC +.0025	TOL -.0005 BASIC +.0035
3 TO 4	TOL +.0005 BASIC	TOL -.0005 BASIC -.002	TOL -.0005 BASIC -.0015	TOL -.0002 BASIC -.0005	TOL -.0005 BASIC +.0025	TOL -.0005 BASIC +.0045
4 TO 5	TOL +.0007 BASIC	TOL -.0007 BASIC -.0025	TOL -.0007 BASIC -.0015	TOL -.0002 BASIC -.0005	TOL -.0007 BASIC +.003	TOL -.0007 BASIC +.005
5 TO 6	TOL +.001 BASIC	TOL -.0007 BASIC -.003	TOL -.0007 BASIC -.0018	TOL -.0002 BASIC -.0006	TOL -.0007 BASIC +.0037	TOL -.0007 BASIC +.0057
6 TO 7	TOL +.001 BASIC	TOL -.001 BASIC -.004	TOL -.001 BASIC -.0018	TOL -.0002 BASIC -.0006	TOL -.001 BASIC +.005	TOL -.001 BASIC +.0065
7 TO 8	TOL +.001 BASIC	TOL -.001 BASIC -.005	TOL -.001 BASIC -.002	TOL -.0002 BASIC -.0007	TOL -.001 BASIC +.006	TOL -.001 BASIC +.007
EXAMPLE 2 1/2 DIA	$2.5000^{+.0005}_{-.0000}$	$2.4980^{+.0000}_{-.0005}$	$2.4990^{+.0000}_{-.0005}$	$2.4996^{+.0000}_{-.0002}$	$2.5025^{+.0000}_{-.0005}$	$2.5035^{+.0000}_{-.0005}$